

REMARKS

Favorable reconsideration and allowance of this application are respectfully requested.

By way of the amendment instructions above, independent claim 1 pending herein has been revised so as to clarify the claimed subject matter and to clearly define the present invention patentably over the applied references of record. In this regard, claim 1 now recites that what ensues by the claimed method is a **stain-resistant nylon** sheath/core filament having an essentially undyed **nylon** sheath and an **acid-dyed** nylon core. Support for both the sheath and core polymers being nylon can be found in the specification as originally filed, for example, at page 9 line 28 through page 10, line 9 and at page 11, lines 20-24. That the core is acid-dyed may be found at page 9, lines 20-23 and Figure 6 and its accompanying descriptive text.

The amended version of claim 1 has also been clarified so as to incorporate the subject matter of original claims 3 and 5. Specifically, claim 1 now requires that the sheath polymer is present in the filament in an amount of less than about 10 wt.%, while the nylon sheath and core polymers are required to possess an amino end group (AEG) content of less than about 10 meq/kg, and between about 10 to 100 meq/kg, respectively. Claims 3, 5 and 9 have been canceled as redundant.

Claims 1-2, 4 and 6-8 thereby remain pending in this application for which favorable reconsideration on the merits is requested.

What should not be lightly overlooked when reviewing the patentability of the present invention is that the applicants have discovered a method whereby **stain-resistant** sheath/core filaments may be provided which are nonetheless capable of being **acid dyed**. This is especially novel since many "stain" materials (e.g., C.I. Food Red 17) are themselves acid-dyes of sorts. The present invention therefore represents a real and non-trivial advance in the art since nylon fibers may be dyed by acid dyes contained in conventional acid dye baths, yet are nonetheless resistant to staining (e.g., by acid stain materials).

As is defined in the pending claim 1, such novel attributes ensue by virtue of a nylon sheath/core filament formed of a nylon sheath polymer and a nylon core polymer which is surrounded entirely by the sheath polymer such that the filament contains less than about 10 wt.% of the sheath polymer. The nylon sheath polymer is resistant to, and thereby remains substantially undyed by, the acid dye in a dye bath and has an amine end group (AEG) content of less than about 10 meq/kg. The nylon core polymer, on the other hand, is susceptible to dyeing by the acid dye dyes in the dye bath and has an AEG content of between about 10 meq/kg to about 100 meq/kg. Thus, when the thus formed nylon sheath/core filament is brought into contact with the dye bath, the acid dye therein will physically diffuse or penetrate through the sheath to dye the core while the sheath remains substantially undyed.

None of the applied references of record discloses or even remotely suggests such a novel method as defined by applicants' pending claim 1. In this regard, applicants suggest that the amendments made to claim 1 render moot all rejections advanced by the Examiner under 35 USC §102(b). As such, the only issues to be resolved in this application are the Examiner's rejections advanced under 35 USC §103(a).

In this regard, the entire thrust of the Examiner's "obviousness" assertions seems to be that one of ordinary skill in this art would have "obviously" provided a sheath polymer with the herein claimed AEG content and in an amount of less than 10wt% so that the core can be acid-dyed, while the sheath remains substantially undyed. Applicants emphatically disagree.

For example, applicants emphatically disagree with the Examiner's assertion that the sheath polymer of Seagraves somehow inherently possesses the applicants' claimed AEG content and, even if it doesn't such an AEG content would have been obvious to an ordinarily skilled person. Seagraves is not concerned at all with providing an anti-staining sheath/core filament, but instead is concerned with an asymmetrical sheath/core filament which improves its "crimpability". At column 4, lines 16-23, Seagraves suggests that some differential dyeing is possible as between the sheath

and the core, but such differential dyeing is attributed to the differences between the nylon 6-12/6 nylon copolymeric core, and the homopolymeric nylon sheath. Hence, based on Seagraves, one of ordinary skill in this art would not be lead to the presently claimed sheath/core filaments whereby the sheath and core polymers have the claimed AEG contents and/or the sheath is present in an amount of less than about 10wt.%. Certainly, Seagraves' disclosure of the sheath therefore being "lighter" in color as compared to the core cannot in any way be suggestive of an essentially **undyed** sheath.

Lin simply discloses that sheath/core filaments may be formed of a nylon 6,12 polymer sheath and a nylon 6,6 polymer core. Example 2 of Lin discloses that the nylon 6,6 polymer has a AEG content of 50 meq/kg, but no disclosure or suggestion as to the AEG content of the sheath polymer is provided. Moreover, Lin does not suggest at all that the therein disclosed sheath/core filament may be acid-dyed such that the core is dyed by an acid dye in a dye bath by migrating physically through the sheath (i.e., so the sheath remains substantially undyed). What Lin does disclose therefore, is that (i) the sheath polymer is nylon 6,12, (ii) the core polymer is nylon 6,6, and (iii) the only amino end group content of *any* polymer employed is 50 meq/kg.

Thus, even if Lin were to be combined with Seagraves, the present invention would not result. That is, such a combination would not be suggestive of a method whereby a **stain-resistant nylon** sheath/core filament may be made having an essentially undyed **nylon** sheath and an **acid-dyed** nylon core.

Hoyt et al is apparently being employed for the proposition that one of ordinary skill in this art would "obviously" substitute the polymer disclosed therein for the sheath polymer of Lin. However, as noted above, Lin is completely silent regarding the AEG content of its sheath polymer. Hence, there is no suggestion at all for any skilled person to go searching for another sheath polymer in view of the Lin disclosure since (a) Lin does not ascribe any significance to the AEG content of either the sheath and/or core polymer vis-à-vis stain resistance, and (b) Hoyt et al discloses a **sulphonated** nylon polymer is necessary in order to fulfil the stain-resistance results.

Anton is likewise deficient. Moreover, Anton actually leads someone skilled in this art *away from* the presently claimed invention since the AEG content of the sheath polymer is between 15-40 meq/kg. Perhaps more importantly, Anton discloses that such a sheath polymer having the AEG content stated is important to ensure its dyeability by **basic** dyes. Thus, the suggestion provided by Anton is that such differences in the AEG contents between the sheath and core polymers is necessary so as to ensure cross-dyeability. Such disclosure would not, applicants submit, be suggestive at all of a sheath/core filament having the attributes of the present invention whereby a **stain-resistant nylon** sheath/core filament may be made having an essentially undyed **nylon** sheath and an **acid-dyed** nylon core.

Lijten is suggested to be even less pertinent to the present invention as compared to the references discussed above. All that Lijten can arguable be said to disclose that is pertinent to the present invention is that trilobal filaments are known generally. Lijten therefore fails to cure the deficiencies of the applied references discussed above.

To reiterate, applicants have discovered a method whereby **stain-resistant** sheath/core filaments may be provided which are nonetheless capable of being **acid dyed**. This is especially novel since many "stain" materials (e.g., C.I. Food Red 17) are themselves acid-dyes of sorts. The present invention therefore represents a real and non-trivial advance in the art since the nylon sheath/core fibers may be dyed by acid dyes contained in conventional acid dye baths, yet are nonetheless resistant to staining (e.g., by acid stain materials).

While the art may be cognizant of sheath/core nylon fibers generally, and that stain-resistant nylon fibers are desired, none of the applied references of record, either individually or collectively disclose or suggest a method whereby a nylon sheath/core filament formed of a nylon sheath polymer and a nylon core polymer which is surrounded entirely by the sheath polymer such that the filament contains less than about 10 wt.% of the sheath polymer may be subjected to an acid dye in a dye bath such that the acid dye in the dye bath will physically diffuse or penetrate through the

sheath to dye the core while the sheath remains substantially undyed (i.e., by virtue of the nylon sheath polymer being resistant to the dye, and the nylon core polymer being susceptible to the dye).

In view of the amendments and remarks above, applicants suggest that this application is in condition for allowance. Official Notice to that effect is solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Bryan H. Davidson
Reg. No. 30,251

BHD:fmh
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100